The Mining Journal

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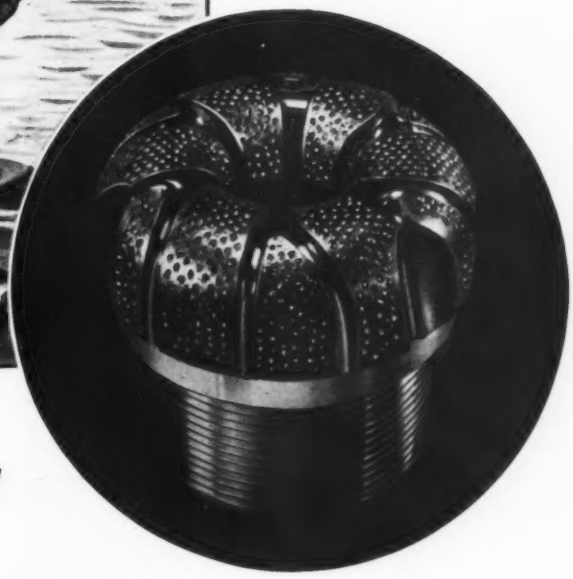

A witch doctor found fortune

Thirty miles from where the first South African diamond was found by the Jacobs children Booi, a witch doctor found the next — two years later — near where the Orange flows into the Vaal River. It was much bigger than the first one and Schalk van Niekirk bought it for 500 sheep, 10 oxen and a horse. That stone proved to be a diamond of 83½ carats. Niekirk sold it for 55,000 dollars. The stone became famous as the Star of South Africa. So the alluvial diamond diggings of the Vaal and Orange Rivers began.

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Keeping pace with the demand for more aluminium

Although the annual production of aluminium in the free world has increased during the last thirty years from 210,000 tons to nearly 3 million tons, this is still insufficient to keep pace with the growing demand. Further large increases have become essential as established and new uses require more and more of the metal.

How the demand is being met

As a major producer of primary aluminium the Aluminium Limited group has responded to this increasing demand with a programme of continuous development in various parts of the world. In Canada, the new expansion programme in Quebec will increase the ingot producing capacity there to over 700,000 tons per annum. At Kitimat in British Columbia, annual productive capacity is being raised to 330,000 tons by the end of 1959. In Jamaica, production of alumina (aluminium oxide) is being increased to 543,000 yearly. In India, an aluminium smelter with an annual capacity of 20,000 tons is being established at Hirakud, Orissa.

Aluminium Union Limited distributes aluminium ingot produced by Aluminum Company of Canada, Ltd., in addition to exporting the products of the various fabricating companies within the Aluminium Limited group.

At Kemano, the cavern in the mountain houses the vast generators supplying Kitimat with power. The panoramic view below shows a section of the Kitimat smelter.

Alurninium Union Limited

(Incorporated in Canada)

THE ADELPHI, JOHN ADAM STREET, LONDON, W.C.2.

OFFICES, ASSOCIATED COMPANIES AND AGENTS THROUGHOUT THE WORLD

an ALUMINIUM LIMITED Company

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NOTES AND COMMENTS

Research on Essential Minerals

Congressional appropriations for the fiscal year 1957 will enable the U.S. Bureau of Mines to intensify nation-wide research in metals and non-metals essential to defence and industrial progress, as recommended by the President's Advisory Committee on Minerals Policy (Paley Report).

Funds totalling slightly more than $22,000,000 have been made available to the Bureau for conducting field studies and for maintaining experimental stations and laboratories in 27 States and Alaska.

Although Congress approved the Bureau's request for an additional $2,000,000 (approximately) to be spent for increased research, funds for work on oil shale and the collection and interpretation of economic and statistical information on domestic and foreign minerals have been reduced. Most of the research programme on solid, liquid and gaseous fuels, health and safety and inspection work in mines, and control of coal fires will operate at virtually the same level as last year.

As part of the stepped-up programme for metals and non-metals, research will be expanded and directed towards establishing and developing engineering principles that will promote safer and more efficient mining practices. This work, to be conducted in close co-operation with industry and with other research organizations, will cover every phase of mining. It will include investigations of methods and costs of both underground and surface mining of all non-fuel minerals, research on rock mechanics, drilling and blasting, studies of ore-sampling theories and practices, and area studies of major mineral resources.

In co-operation with a major steel company, the Bureau will use its experimental blast furnace at Pittsburgh, Pa., to investigate smelting characteristics of various iron ores and agglomerates of different types and sizes. Research on iron ore will be accelerated to find ways and means of meeting the rapidly increasing demands for pig iron and steel that have depleted domestic ores. The Bureau will investigate iron ore deposits in the North-Central Western States and conduct laboratory studies to develop methods of beneficiating low-grade materials.

Chromium will receive increased attention, with the emphasis on studies designed to permit use of off-grade materials. Other work will be aimed at developing low-cost methods of producing high-purity vanadium as a by-product of uranium milling operations.

Through a widespread programme combining field investigations and laboratory studies, the Bureau will obtain information on the quality and extent of titanium mineral reserves in the U.S. It will enlarge its laboratory and plant studies to reduce costs of producing high-purity titanium metal. Consumption of titanium, aluminium and magnesium is growing steadily throughout the world. To provide industry and Federal planning agencies with information that will assure sufficient or supplies and production capacity for these metals in an emergency, it is planned to re-evaluate supply-demand situations frequently during the 1957 fiscal year.

The Bureau will expand its research in the fields of copper, lead and zinc. Known reserves of these materials will be evaluated and the search for new ore sources speeded up. Metallurgical research on all three metals will be intensified and studies to develop better mining techniques will be accelerated to help domestic mines to improve their competitive position. Copper research will receive special emphasis. Continuing improvement of mining techniques is regarded as necessary for sustained progress in this industry, where huge tonnages of low-grade ore must be handled, and the Bureau has allotted additional funds to co-operative mining research projects at several of the larger copper mines.

Work by government and industry has helped to increase supplies of columbium, tantalum, beryllium and selenium by uncovering new mineral deposits and developing better methods for extracting these metals from low-grade ores. Demand is still rising, however, and the Bureau will therefore increase mining and metallurgical research on these four metals and also on the rare earths, which are now be-

ing referred to as " the wonder metals of the future ".

The need for vigorous research as part of a planned programme for the development of the Commonwealth's mineral resources is becoming increasingly apparent. Much of the work projected by the Bureau of Mines in its programme of 1957 is paralleled by studies undertaken in Commonwealth countries by government laboratories and industrial research associations or by mining companies. In the aggregate, however, mining and minerals research in the Commonwealth is still sadly inadequate, both quantitatively and in scope. A programme comparable to that planned by the Bureau of Mines, and supported by adequate funds, would not only stimulate the development of the Commonwealth's mineral resources, but would also encourage the more effective utilization of these resources. In the absence of a co-ordinated programme, the Commonwealth appears to be making little progress in the development of many of the newer metals. Can we afford to lag behind ?

Hydro Development in Venezuela

In 1955 Venezuela was the world's second largest producer and largest exporter of oil. Due to increasing demand both in the U.S. and Europe, production this year is expected to exceed the average figure of about 2,200,000 bbl. per day achieved in 1955. The upward trend is likely to be considerably accelerated in the not-distant future as a result of increased investment by major oil companies and the new concessions announced by the government earlier this year.

The increasing revenue from oil has demonstrated to Venezuela in a most practical and agreeable manner the benefits to be gained from a vigorous policy of mineral resources development. At the same time, it has placed the country in a favourable position financially to encourage the exploitation of other natural resources. Venezuela is already an important exporter of iron ore. Production is being rapidly expanded and reached 8,220,000 tonnes last year compared with 5,388,000 tonnes in 1954. Shipping is now the main factor limiting larger sales to countries overseas. Diamond production is on the up-grade, the coal industry (with German participation) is also going ahead, and other minerals are being exploited or are known to occur in commercial quantities.

Three companies will share a contract which has been given by the Venezuela government for the topographical mapping of an area comprising some 2,250,000 acres along the tortuous course of the Caroni River. The survey is intended to define the storage basin preliminary to the development of electric power for the rapidly growing industrial area in the vicinity of Ciudad Bolivar. This city lies about 75 miles upstream from the confluence of the Caroni and the Orinoco, close to the oilfields of Eastern Venezuela and the immense iron ore deposits of Cerro Bolivar.

The lower stretch of the River Caroni, from the Paragua River up to the confluence with the Orinoco, has a fall of 240 m. over a length of 210 km. In this section the hydro-electric potential is estimated at 4,000,000 kW. It could be harnessed at a cost of $150 per kW. installed or a total cost of $600,000,000. The plan envisages the construction of an installation with a capacity of 6 units each generating 50,000 kW. It is intended that the first unit should be functioning in the first quarter of 1958. A total of 200,000 kW. would be available by the second quarter of 1959 and thereafter capacity would be increased as required to 300,000 kW.

The electrification of the Caroni River will facilitate the development of all the resources concentrated in the south east of Venezuela. Close to the river iron mines with reserves estimated at 1,000,000,000 tons are being exploited. near Upta there are more than a million tons of manganese deposits and bauxite has been found in the locality.

Various U.S. companies are reported to be interested in the bauxite deposits at Nuria in Bolivia State, which are being surveyed by the Ministry of Mines. They are reported to be extensive, but commercially exploitable bauxite has not yet been found. Alcoa plans to build an aluminium extraction plant, but the local processing of bauxite into aluminium will depend on the cost of power from the Caroni hydro-electric plant.

The Coal Industry

(From Our Own Correspondent)

The suggestion that a joint committee of British and West European parliamentarians should be created to tighten the links between Britain and Europe's six-nation Coal and Steel Pool was rejected at a meeting of the Council of Association at Luxembourg recently.

Mr. Peter Thorneycroft, President of Britain's Board of Trade, who headed the British Delegation to the meeting, said in answer to a press conference question afterwards : " Quite frankly, at this stage, we could see no very useful purpose to be served by adding to already existing institutions."

The Common Assembly of the E.C.S.C. recently urged the creation of a consultative parliamentary committee of nine members of the British House of Commons and nine members of the Pool's Parliamentary Assembly to strengthen contacts between Britain and the Pool. The present link between Britain and the Pool, the Council of Association, was created last autumn to ensure joint action on the field of technical and scientific research and to exchange information on price trends, investment policies and supplies of raw material and fuel.

In response to continued requests by the E.C.S.C. Britain has agreed to deliver 1,000,000 tons of coal in the second half of this year instead of the 260,000 tons originally envisaged. The High Authority of the Pool would like Britain to increase the quantity still further in view of the serious European coal shortage caused by the call-up of French miners. At a press conference, after the meeting, however, Mr. Aubrey Jones, Minister of Fuel and Power, said Britain wanted to help the Community but was reluctant to increase her coal exports if this meant raising her imports of coal from the U.S.

THE U.S. STEEL STRIKE

The recent ending of the nation-wide steel strike in the U.S. has allayed the fears of many of the independent coal producers, who saw in a prolonged strike a threat to the continued running of their collieries.

This, the fifth national steel strike of the post-war years, did not greatly affect national coal production, although some 40,000 miners employed in the so-called steel " captive " mines were unemployed for a short period. These are the mines which sell solely to the steel industry. However, by the time the strike ended even those mines selling their products on the open market were beginning to be affected by the overall curtailment of industrial activity brought about by the steel strike.

Apart from this relatively minor setback the U.S. coal industry seems headed for another bumper year and it is expected that 42,000,000 tons of U.S. coal will go to West European countries. Last year Western Europe took only 27,000,000 tons, whilst the average for the first 10 post-war years was 22,000,000 tons.

Operation Overthrust—A New Conception in Minerals Exploration

The world's most extensive mining library and geophysical model test laboratory in Toronto are only two of the many far-reaching results that are the products of the new co-operative geological study of some 357,000 sq. miles of aerial photography now being undertaken in the mining areas of the Precambrian Shield in Canada and the United States. Named "Operation Overthrust", the project is being completed by The Photographic Survey Corporation, Toronto, a Hunting Associate. From the magnitude of the project it can be assumed that the participants include some of the most influential mining companies in the world.

Already the leading North American mining companies which started the Operation Overthrust project co-operatively are planning 400,000 sq. mile extensions which will extend the scope of the operation to Labrador and far beyond the Manitoba border. Exploration of one of the richest mineral areas in the world is expected to be advanced by at least a generation in the relatively short period of two-and-a-half years, the period envisaged as necessary for completion of the project. Multi-million dollar geological and geophysical field work will follow the over-all study. A listing of the possible locations of the economic minerals in the area will be compiled, especially the lesser known minerals such as lithium, colombite, tantalite, titanium and chromite.

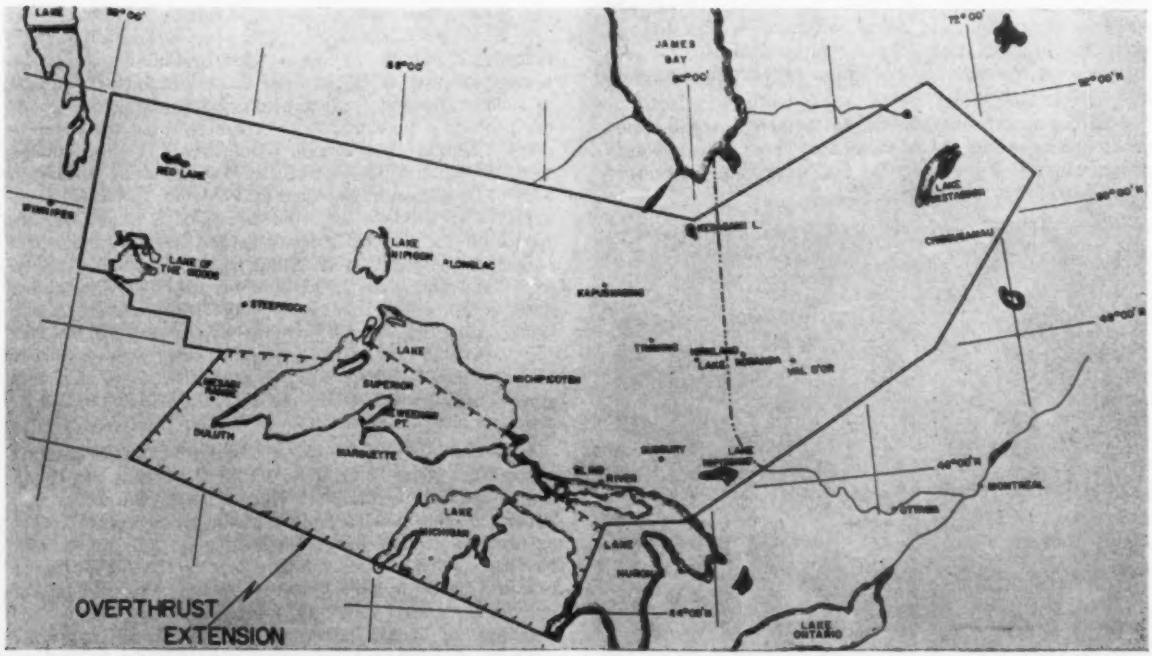
The same experts from the Photographic Survey Corporation, of Toronto, who worked on the complete natural resources inventories of Pakistan and Ceylon under the Canadian Colombo Plan and of Alberta for the Provincial government have been assigned to this project. As well as geologists these experts number among their ranks soils engineers, foresters, hydrologists, civil engineers and experts from other fields related to mineral search. Operation Overthrust is the largest survey of its type in the world.

Under the study, all known existing and available geological and geophysical data will be correlated with a structural and mineral evaluation by stereo-interpretation of aerial photographs.

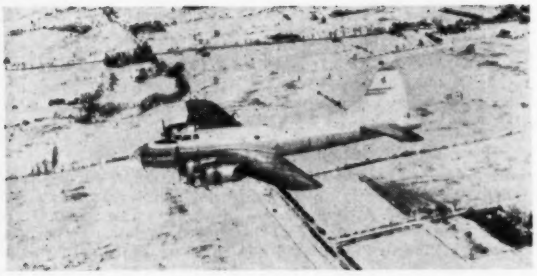
Operation Overthrust follows a similar though smaller co-operative study by PSC of 10,000 sq. miles of New Brunswick mining fields undertaken by a number of leading mining companies. An associate company of PSC has recently discovered for its clients half a dozen mines in this New Brunswick area through its own-developed electro-magnetometer.

As a result of the success of the New Brunswick operation, PSC was requested to make a preliminary evaluation of some 1,200,000 sq. miles of aerial photography of the Laurentian Shield, with a view to starting the bigger study. PSC made a miniature mosiac valued at more than $1,500,000 from this photography. The results were so promising that several companies have undertaken the joint study. Others are planning to join, and from the scope of the project, it may be assumed that the participants include some of the largest and most important companies in the mining world. The cost of the whole project is estimated to be in the neighbourhood of $2,000,000.

The survey embraces all the major mineral finds in the last few years between Labrador and beyond the Manitoba border. Correlation of information and interpretation of aerial photographs for Operation Overthrust are estimated to take a minimum of fifty engineering man years. The project calls for the preparation of 400 one mile to the inch mosaic sheets on Canada, and 82 more on the United States, each covering an area of approximately 800 sq.



Operation Overthrust portrayed at an approximate scale of 1 in. to 100 miles. (Final mosaics are compiled on a scale of 1 in. to 1 mile)



The B-17 used in Operation Overthrust

miles. In addition, 12 mosaics on a scale of 8 miles to the inch will be made covering the same area on a smaller scale.

Transfer of geological structure, rock fracture patterns and contact zones from this stereoscopic interpretation will be made to the one mile to the inch mosaics. All known existing geological data from government and other maps will be added to the mosaic. Wherever practical, study and correlation of geophysical, geochemical and drilling data will be included.

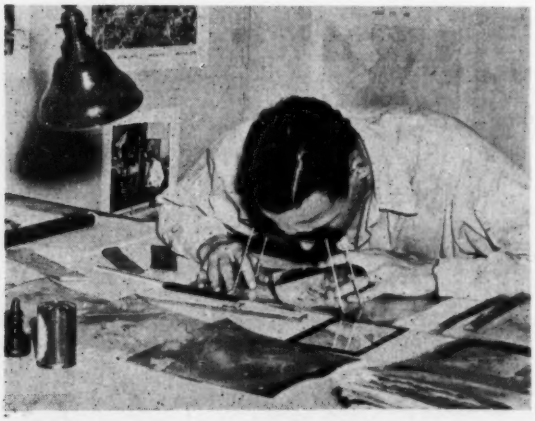
A Flying Fortress will be dispatched to take extensive colour photography to detect any anomalous conditions associated with mineral deposits. Such photography will be taken of the Blind River Uranium Basin, the Sudbury Basin and the Bancroft area to cover uranium-bearing formations and copper dumps.

INFORMATION OF LASTING VALUE

Cursory examination will be made by forestry engineers of the forestry division to recommend application for colour photography to forestry resources inventories for both non-tropical and tropical use. It is expected that this will prove extremely useful in revealing economic data to the highly competitive forest products industry.

Through its extended scope, the mosaic produced is expected to be valuable in tracing minerals moved by glaciation. Due to the depth of burial, rich mineral deposits in the area under the study could be missed by applied geophysics, but associated deep seated geological structures visible from stereoscopic evaluation of air photographics could lead to their discovery.

Much of the information PSC has gathered over the years from operations in seven continents from a world-wide organization is being added to the library and laboratory being established in Toronto.



A PSC forest interpreter, examining a pair of aerial photographs through a stereoscope

Outlook for Uranium in Canada

There a growing belief in Canada that within the next five years the demand for uranium may be greater than the available supply. The Canadian government continues to contract for output of uranium at a premium price—and with the price guaranteed into 1962. These contracts are near $1,400,000,000, writes our Canadian correspondent.

Producers in Canada are full of confidence for the future. The truth is that with prospects of the sources of uranium petering out within the next half dozen years or so in the United States, a resort to a much higher price than $8 to $10 per lb. for uranium oxide may take place—and with some observers suggesting that a price of as much as $30 per lb. may have to be paid.

ACTIVITY AT BLIND RIVER

Meanwhile, in support of their confidence in the long future ahead, and based upon the fact that they represent the fastest growing uranium mining field in the world, the operators in the Blind River district of Ontario are carving

Panoramic view of Pronto Uranium Mines Ltd.

a townsite out of the virgin wilderness designed for the accommodation of 20,000 inhabitants. In further support of such confidence, leading banks and financial institutions are providing the capital with which to speed the development. Setting the pace in Blind River is Consolidated Denison which is being geared for production of more than $3,000,000 a month, together with Algom Mines which is expected to produce at about the same rate as Denison. Added to the two leaders are several other assured producers, to the end that the Blind River field looks forward to milling more than 25,000 tons of ore daily, and with a daily output of approximately 50,000 lb. of uranium oxide —suggesting an annual yield in excess of $180,000,000. Last year the Canadian government, through Eldorado Mining and Refining Ltd., signed firm contracts with Algom and Consolidated Denison, and also with another producer, Pronto Mines.

Latest addition to those securing a government contract in the Blind River field for sale of their output is Northspan Uranium Mines which is a merger of Lake Nordic, Spanish American, and Panel properties. Northspan is under management control of Rio Tinto Mining Co. of Canada, and has been given a contract to sell $242,416,800 worth of uranium oxide to the Canadian government—the largest individual contract so far negotiated. Northspan plans construction of three individual mills with an aggregate capacity of 9,000 tons daily, and with anticipated development expenditures reaching $70,000,000.

Conservation of Mined Materials in the U.S.S.R.

The following article is condensed from an interesting review of *Reserves From More Economical Use of Material Resources in Heavy Industries.* This pamphlet, written by E. Yu Lokshin, a Soviet economist, was reproduced in abridged form in *Mineral Trade Notes, Vol. 41, No. 6,* published by the U.S. Bureau of Mines. Throughout the article fragments of interesting information are disclosed, while statistics are naturally those released officially by the relevant official Russian sources.

The paper is a study of the economic significance of materials conservation, and presents five principal ways in which economy of material resources can be accomplished. There are :

(a) by decreasing the weight of machines and other manufactured products;
(b) by decreasing industrial losses and waste products;
(c) by utilizing industrial waste products;
(d) by introducing suitable substitutes and new materials; and
(e) through multiple utilization of materials.

While discussing various good as well as wasteful practices in the Soviet industry, the author discloses information of considerable interest. For example, data on savings of rolled ferrous products bear out the officially reported figures on steel production. The author states that, as a result of revisions of antiquated Soviet standards, consumption rates of rolled ferrous products have decreased 12 to 15 per cent, which has made it possible, during the Fifth Five-Year Plan, to save over 3,000,000 tons of rolled products annually.

Soviet steel production during the first four years of the Fifth Five-Year Plan was officially reported as follows (in thousands of tonnes) :

1951	31,200
1952	34,800
1953	38,400
1954	40,800
Total	145,200

Output of rolled products during these four years was estimated at 70 to 75 per cent of the crude steel production or 106,000,000 tonnes. A 12 per cent saving would be 12,700,000 tons, or an average of over 3,000,000 tons annually.

NEED FOR CONSERVATION

Other statements regarding the need for greater conservation of non-ferrous and ferro-alloy metals are further evidence of existing shortages of these metals in the U.S.S.R. The author recommends that wherever possible suitable substitutes be used for such non-ferrous metals as copper, tin, zinc, nickel, and lead, and for such ferro-alloy metals as molybdenum and tungsten. Significantly, the order in which these metals are listed within each group reflects the order of acuteness of these shortages. On the other hand, the suggestion that the properties of the elements boron, niobium (columbium), and zirconium be studied more extensively tends to indicate an ample supply of these elements in the Soviet Union.

Some highlights of this publication include the information that in 1955 the government of the U.S.S.R. allocated 189.6 billion roubles to financing all branches of industry. Of the above amount, 163.6 billion roubles was used in the further development of ferrous and non-ferrous metallurgy, electric power stations, machine construction, coal, petroleum, chemical, forestry and paper industries, construction materials and construction industries, and other branches of heavy industry.

In post-war years, particularly during the period of the Fifth Five-Year Plan, raw materials utilization practices have improved considerably Selected examples of the lower 1954 raw material consumption rates compared with those of 1950 reveal the following statistics :

CONSUMPTION RATE OF FUEL
(Kilogrammes)

Product	*1950*	*1954*
1,000 kw. hrs. of electric power	539	497
1 m.t. of open hearth steel (Ministry of Ferrous Metallurgy)	217	197
Consumption of timbering material (in cu. m.) per 1,000 tonnes of coal and shale produced by the Ministry of the Coal Industry	40.9	37.7

During the period of the Fifth Five-Year Plan, the consumption rates of rolled ferrous metals decreased an average of 12 to 15 per cent, fuels 8 to 10 per cent, forestry products 7 to 8 per cent, and electrical energy 7 to 8 per cent. For the years 1951-1955, this resulted in an economy of over 3,000,000 tons of rolled ferrous metals, up to 45,000,000 tons of fuel, up to 10 billion kW.-hr. of electrical energy, 15,000,000 to 16,000,000 cu. ft. of lumber, and large quantities of other materials. It is apparent from these figures that all absolute quantities are an annual average for the past 5-year period.

In the metallurgical industry there are ways of lowering losses of raw materials in the pig-iron as well as in the steel making and rolling stages. In the blast furnaces large quantities of ore, coke, and fluxing materials are carried away with the flue dust. In the U.S.S.R. the average loss of solids is about 150 kg. per ton of pig-iron produced. While in 1954 the loss at the Magnitogorsk combine was 51 kg. per ton of pig-iron and 57 kg. at the Kuznetsk combine; it was 256 kg. at the Enakiyev plant and as much as 359 kg. at the Petrovski plant. Several million tons of iron ore would be saved annually if the country's average loss of solids with the blast furnace flue dust could be decreased to 100-200 kg. per ton of pig-iron produced. This condition could be alleviated by more careful preparation of the raw materials, particularly by improving the quality of the agglomerate.

The Magnitogorsk Metallurgical Combine, by increasing the gas pressure at the throat of the blast furnace by 0.7-0.8 atmosphere, has decreased the loss of ore approximately 1.5 times and has increased the efficiency of the furnaces. The Kuznetsk Metallurgical Combine has effected considerable saving of manganese ore and limestone by using open hearth slag in the blast furnace charge.

ROLE OF SUBSTITUTION

One of the most important assignments is to substitute non-ferrous metals with less valuable (less expensive) metallic or synthetic materials. A great deal of non-ferrous metals—copper, tin, zinc, nickel, lead, and others—are used in the form of various alloys, such as bronze, babbitt metal, and brass. Some of the metals in these alloys can be replaced with substitutes. For example, in many cases bronze with a high tin content can be replaced with special brands of aluminium-bronze (non-tin bronzes) or alloys with a zinc base. Suitable substitutes for babbitt metal and tin-bronzes are special brands of low-alloy anti-friction cast iron which have been developed in the past few years. Having high physico-mechanical and anti-friction proper-

ties, these cast irons are used in the manufacture of bushings and bearing linings and other parts subjected to heavy mechanical loads and great wear.

Graphitized steel (steel with a high carbon and silicon content) is also used as a substitute for tin bronzes and babbitts. Other suitable substitutes for alloys with a high tin content are manganese bronze, silicon and other brands of brass, and babbitt metal with a low tin content.

Old substitutes for non-ferrous metals, particularly lead, are viniplast (a vinyl plastic), and poluizobutilen (polyisobutylene). Other suitable substitutes are asbovinil (a plastic mass made of ground asbestos and vinyl), polietilen (polyethylene), faolit (a mixture of phenol-formaldehyde and asbestos), tekstolit (which is probably the same as the G.E. plastic textolite, a plastic similar to formica), and other materials.

A great number of steel substitutes have been developed by research institutes. Thus, several new brands of steel without molybdenum are used with success in place of molybdenum bearing steels. Other brands of steel are used to substitute for tungsten steels. Particular attention should be directed to the economy of molybdenum, nickel and tungsten, and to a more extensive study of the properties of such elements as boron, niobium (columbium), and zirconium.

The collection and preparation of scrap must become a matter of federal concern. A great deal of metal could also be extracted from old slag dumps. It has been estimated that in some southern metallurgical plants the metal can be extracted at a 20 to 25 per cent lower cost than the metal prepared from imported scrap or scrap which must be transported over long distances.

The Nairne Pyrites Plant, South Australia

The £1,500,000 plant established by Nairne Pyrites Ltd. at Brukunga, South Australia,was recently opened by The Hon. T. Playford, Premier of South Australia. The Brukunga project assures primary industries in the area of adequate supplies of sulphur.

Nairne Pyrites Ltd. was formed in 1951 through the enterprise of the Adelaide Chemical and Fertilizer Co. Ltd., Cresco Fertilizers Ltd., Wallaroo-Mount Lyell Fertilizers Ltd. and the Broken Hill Proprietary Co. Ltd., with substantial financial assistance to the value of £1,000,000 as well as other encouragement from the South Australian government. After separation in the Brukunga plant, the pyrites —containing over 40 per cent sulphur—is railed to Birkenhead for sulphuric acid manufacture. The residue, which is pure iron, is at present discarded, but it is hoped that at some future date this residue may be converted to steel.

South Australian demand for superphosphate has doubled since the pre-war era, and now requires 150,000 tons of sulphuric acid for which 50,000 tons of sulphur per annum are required. The plant, on which £1,500,000 has been expended, will provide 30,000 tons of sulphur a year, thus replacing imported supplies and saving over £500,000 per annum in dollar currency. The prospects for the project appear bright, as over a length of one mile, drilling in the neighbouring hills has proved 50,000,000 tons of ore, sufficient for 150 years' supply at present usage.

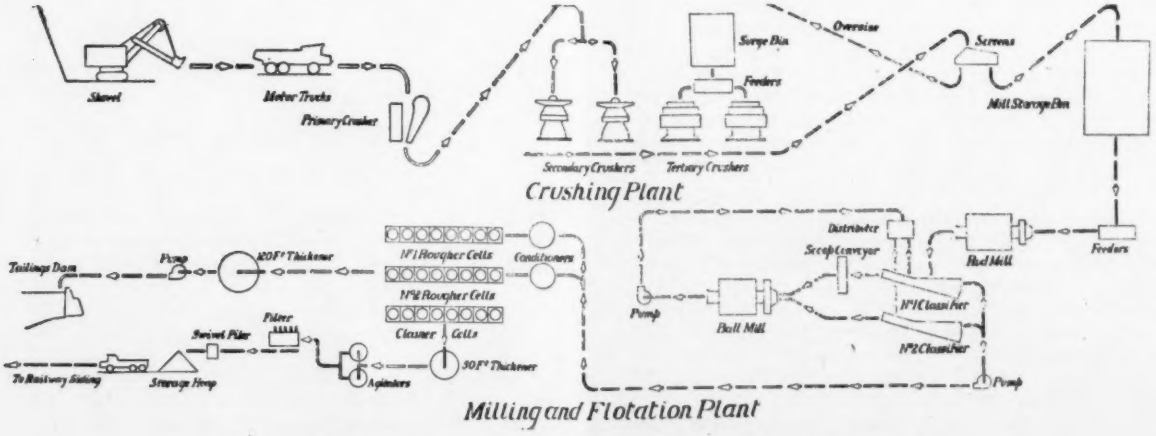
Brukunga ore is won by open cut quarrying, using a 120 Ruston Bucyrus 4 cu. yd. shovel, and 20-ton Mack end-dump trucks for transport to the crushing plant. Here it is first passed through a 60 x 40 in. Ruwolt primary crusher, and then to the secondary crushers, which are the 4 ft. Traylor gyratory type, with a 2-in. discharging setting. It then passes through a screening plant to the Symons 4-ft. standard tertiary cone crushers, and from these through the rod and ball mills to the flotation section.

The flotation section consists of three banks of No. 21 Denver cells, each bank consisting of eight cells; two are rougher cells, and the remaining bank cleaner cells. Concentrates are thickened, pass to the agitators, and then to the filter house, which contains an 8½ ft. dia. disc filter, and provides sufficient space for the installation of a second filter of the same type.

The filter cake drops from the filter on to an 18-in. conveyor belt discharging into the hopper of the swivel piler. This unit projects the concentrates into the storage shed, and pivots about a vertical axis to give comparatively large storage with limited head room.

From the shed, the concentrates are trucked to a siding at Nairne, and there transferred into railway trucks for transport to the works of Sulphuric Acid Limited at Birkenhead.

The opening of the plant is described in *The B.H.P. Review*, Vol. 33, No. 3.



Flowsheet of the combined crushing, milling and flotation plants at Brukunga

NEWBATTLE RECONSTRUCTION—III.

The Lady Victoria Colliery Tippler Station

During the summer meeting of the Institution of Mining Engineers at Edinburgh, visits were arranged to a number of Scottish collieries at which programmes of reconstruction and development were completed or well advanced. Among the most interesting of these projects is the Newbattle surface reconstruction scheme, which involved re-organization of Easthouses Colliery and of surface transport to a central preparation plant. The scheme is described in the following article, the third of three instalments, relating the role played by the Lady Victoria Colliery tippler station in the overall scheme at Newbattle.

The tippler station for the surface transport cars at Lady Victoria Colliery consists of two full car sidings, two empty car sidings each fitted with car handling creepers, a full car traverser, car tippler, tippler bunker, and plate belt feeder, discharging on to the belt conveyor which carries the run-of-mine coal to the screening plant.

The full trains are pushed by the loco from the rounding loop on to the embankment into either of the two parallel full car sidings until the leading car engages on the car handling creeper. The loco is then detached and the train is fed forward by means of the creeper until the leading car is clear of the creeper, when it is uncoupled and gravitates forward on to the approach armbrake. When the car traverser carriage has been proved opposite the appropriate full car track, the operator in the control cabin pushes a button to release the armbrake and allow the full car to gravitate on to the traverser carriage platform, where it is brought to rest by a buffer armbrake and spring-loaded wheel stops. When the car is stationary the traverser carriage automatically starts travelling until it comes to rest opposite the tippler track. The traverser platform is then raised by hydraulic ram, causing the full car to gravitate off the traverser on to the tippler platform, where it is again brought to rest by an armbrake.

THE TIPPLER OPERATION

The tippler operation is initiated by pressing a separate push-button, thus allowing the rate of tipping cars to be controlled. When a car has been tipped it is automatically released and gravitates on to either of the two empty car sidings, where it couples automatically on to the rear end of the empty train, which is pushed forward by means of the car handling creeper until a train is gathered.

The car traverser and tippler equipment were designed and manufactured by Strachan and Henshaw Ltd. with Fraser hydraulic operation of the armbrakes and traverser platform tilting ram, and Igranic electrical control gear. The car handling creepers are driven at a chain speed of 20.2 ft./min. by 7½ h.p. motor through worm reduction and epicyclic gearing, and are controlled by Keelavite hydraulic control equipment by means of push-button operated solenoid valves from the control cabin.

The run-of-mine coal is fed from the reinforced concrete tippler bunker by means of a 46 in. wide x 8 ft. centres plate belt feeder, driven at 30/15 ft. per min., which delivers the coal at the rate of 400/200 tons per hour on to the belt conveyor.

The troughed belt conveyor carrying the coal into the screening plant is 42 in. wide x 727 ft. long and operates at a belt speed of 350/175 ft. It is driven by a 48 in. Goliath 6 driving gear with a 50/25 h.p. two-speed motor running at 1,500/750 r.p.m. The conveyor rises in an inclined tunnel to a height of 45 ft. from the plate belt feeder at the tippler bunker discharge on to an open type gantry.

The gantry extends into the Lady Victoria pithead and screening plant building, and a two-way discharge chute is fitted, feeding on to two parallel sets of jigging screens and picking tables. The two-speed drive arrangement for the plate belt feeder and belt conveyor is remotely controlled by the operator at the belt conveyor discharge, enabling the rate of feed on to either picking table to be immediately halved in the event of stoppage of one table.

Loading station at Lady Victoria Colliery

The belt conveyor and gantry were supplied by Richard Sutcliffe Ltd. The belt, which was supplied by the North British Rubber Co. Ltd., was put on in two lengths, the joints being vulcanized on site.

DESIGNERS AND CONTRACTORS

The design, organization and supervision of this reconstruction work were undertaken by the Planning Department of the Southern Sub-Area, Lothians Area, with the helpful co-operation of the various area, sub-area and colliery officials concerned. The majority of the mechanical and electrical erection work was carried out by the staff of the Newbattle Central Workshops.

Messrs. Blyth and Blyth, Consulting Civil Engineers, were responsible for the detailed design of the various civil engineering and building works at Lingerwood and Lady Victoria Collieries in connection with the Surface Transport Scheme.

The following are the main contractors whose co-operation throughout the progress of the reconstruction work is acknowledged :

Easthouses Colliery

Surface Gantry, Monitor Car Loading Station and Main U.G. Hopper : Messrs. Robert Thomson, Engineers; D.B. Monitor Cars : Distington Engineering Co. Ltd.; Tub Tippler, Tub Feeders and Scraper Conveyors for Measuring Hoppers : Qualter, Hall and Co. Ltd.; Electrical Control Gear : The Belmos Co. Ltd.; Winding Engine for No. 2 Incline : Walker Bros. (Wigan) Ltd.; Tracklaying on No. 2 Incline : The Clydeside Constructional Co. Ltd.; C.E. and Building Works : John Montieth Ltd., James White (Contractors) Ltd., John Cullen (Musselburgh) Ltd., Holst and Co. Ltd.

Lingerwood Colliery

Tub Handling Plant : Qualter, Hall and Co. Ltd. and Metropolitan-Vickers Electrical Co. Ltd.; Belt Conveyor Equipment : The Mining Engineering Co. Ltd.

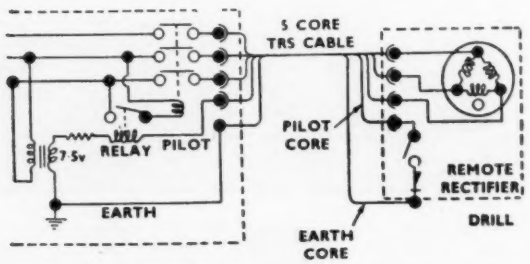
Surface Transport

Civil Engineering Works : Whatling Ltd.; Track Laying : Thos. Summerson and Sons Ltd.; 10-ton Cars : The Distington Engineering Co. Ltd.; Diesel Locomotives : The Hunslet Engine Co. Ltd.; Car Handling Creepers : Beckett and Anderson Ltd.; Car Traverser and Tippler Equipment at Lingerwood and Lady Victoria : Strachen and Henshaw Ltd.; Belt Conveyor to Screening Plant : Richard Sutcliffe Ltd.; Signalling Equipment : Heyes and Co. Ltd.; Siding Lighting Installation : General Electric Co. Ltd.; Electrical Control Gear : The Belmos Co. Ltd.

MACHINERY AND EQUIPMENT

Protected Remote Control for Drilling Machines

The electro-magnetic switch or contactor has allowed the development of remote control which has so many advantages over direct switching that in British mines it is required by a regulation and in many parts of the world it is being requested to an increasing degree.



Circuit diagram of remote control in gate end boxes

In the latest type of remote control circuit used in Victor gate end boxes the pilot circuit is fed from a potential transformer in the gate end box which reduces the voltage of the supply to 7.5 volts, which is low enough to prevent the inadvertent explosion of detonators due to the potential of the circuit should accidental contact occur. The pilot relay which controls the main power circuit contactor operates in series with a ballast resistor which must be in the circuit to obtain the necessary standard of intrinsic safety. This means that any sparking which may occur in the pilot circuit in normal working will not cause an explosion by igniting any gas which may be present in the surrounding atmosphere.

In normal operation with a half-wave rectifier in the drill the operating current is unidirectional. However, should a fault occur in the trailing cable between the pilot and earth cores cutting out the remote rectifier, the copper sleeve absorbs the alternating energy produced in the relay core and the relay opens and will not re-close until the fault is removed. This protective feature is known as pilot core-earth protection.

Increase in resistance in the earth core to the drill due to a faulty condition will also prevent the relay from closing and this is known as earth core continuity protection. This is also important, for the drill operator depends on the earth core to protect him from shock should a fault occur in the motor winding.

This type of protected control, which greatly reduces the hazards of fire and electric shock in mining operations was described recently in a publication of Victor Products Ltd.

A Range of Belt Conveyors

An interesting brochure recently published by Hugh Wood and Co. Ltd. outlines the manufacturers' range of belt conveyors for industrial application, of which use within the mining industry is of marked importance. The booklet describes such items as single and tandem drum drive heads, self-lubricating oil-filled drums, intermediate sections, rollers, tail assemblies and similar components.

Particular attention is drawn to the Huwood patent self-lubricating system as applied to idler rollers, idler drums and snub pulleys. The Huwood roller, with its self-contained lubricating system, will run for long periods without attention. Many of these units are in operation in all parts of the world in heavy ore handling applications.

Rubber Developments in Mining

The increasing availability of new rubber compounds is already having its effect not only on standard manufactured products but also on the development of products which were previously outside the scope of natural rubber and plastics. Many of these developments have applications in mining.

An example is a recently developed collapsible cargo tank which opens up on the concertina principle and can be used for conveying goods ranging from crude oil to steel. Another simple but long overdue development is a cellular rubber kneeling pad which will not absorb water. Already used by coal miners throughout Britain, this type of pad has a closed cell structure which gives great resilience whilst preventing the absorption of water or other liquids.

A New 200 ton Horizontal Chain and Cable Testing-Machine

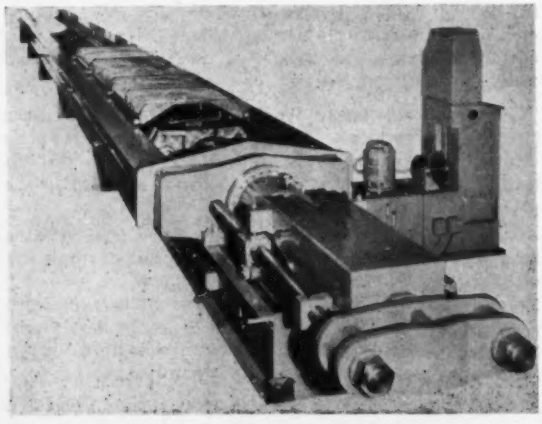
The importance of the perfect testing of chains, cables, hemp ropes, etc., for operational safety in many branches of industry, has been made abundantly clear during recent years by accidents whose cause has been traced back to faulty conditions of the lifting or conveying equipment. The modern mine, with its great demands on cables and chains for lifting and conveying operations, has contributed extensively to the importance of technological chain and cable control and testing. In spite of the possibility of relatively indestructible materials, the chain testing machine is still one of the most important methods in industry. Technological testing in the chain-and-cable industry can be divided in general into chain and anchor testing, rope testing, and stretching tests.

The illustration below shows a new modern horizontal chain and cable testing machine for the highest-load of 200 tons. This machine is being built by Karl Frank, G.m.b.H., under licence in Western Germany, and is to serve chiefly for the carrying out of stretching tests on conveying and lifting-cables, hemp ropes, as well as on chains.

The complete plant consists of the actual testing machine, the pendulum-manometer, the oil-pressure-pump, as well as the accessory parts. The traction-axle of the machine and the middle-machine-bed converge, so that a perfect power-closure is attained and the floor has only to take up the machine's own weight. An inclination-balance (pendulum-manometer) automatically shows the load exerted by the test. The greatest testing-power of 200 tons is divided into four measurement-realms namely 0-200 tons, 0-100 tons, 0-40 tons and 0-20 tons.

The gripping head on the piston rod runs on ball bearings on a smooth track with the help of rollers, so that the rolling friction appearing between rollers and track is unimportant insofar as the exactness of the power-indicator is concerned.

For carrying out tearing and stretching tests special stretching-devices are available which hold the test pieces firm even with the highest load of 200 tons. The stretching parts for chain-stretching, consisting of chain-holder and chain-jaws, are so graded, that chain-irons of 5-40 mm. dia. can be tested.



The 200 ton horizontal chain and cable testing machine manufactured by Karl Frank G.m.b.H.

MINING MISCELLANY

Deposits of iron ore, averaging 38 per cent iron, have been discovered in the Gostivar-Bukovik-Kicevo region of Yugoslavia. The Kicevo Basin is rated as one of the richest in Yugoslavia, its reserves being estimated at about 60,000,000 tons. Exploitation at the Zvan Mine will begin this year. Besides iron ore, the mine will produce considerable tonnages of phosphorus fertilizers.

* * *

Under Hungary's second Five Year Plan (1955-60) it is envisaged that by 1960 industrial production will be some 50 per cent higher than in 1955. During this five-year period production of oil should increase by at least 300,000 tonnes. The production of natural gas, which in 1955 was 543,000,000 cu. metres, is expected to reach at least 700,000,000 cu. metres by 1960. Bauxite production should rise to almost 1,600,000 tons from the 1955 total of 290,000 tons. In 1960 the production of electrical energy per head of the population will be 5.3 times greater than in 1938, that of coal 2.8 times greater and that of aluminium 33 times greater. The production of steel per capita will have trebled in the same period.

* * *

The Caterpillar Tractor Company has announced the purchase of the factory, plant and stock-in-trade of the Birtley Company Ltd. at Birtley, Co. Durham.

PERSONAL

Mr. G. Keith Allen has been elected president of the Institution of Mining and Metallurgy for 1957-58.

* * *

Mr. R. N. Harle has been appointed assistant consulting mining engineer to the Rhodesian Selection Trust group of companies.

* * *

Mr. B. W. Kerrigan has been appointed Secretary of the Institution of Mining and Metallurgy and will take up his duties at the beginning of September, 1956.

* * *

Mr. C. J. Atkins, sales director; Mr. F. W. Goodge, contracts director, and Mr. S. Hudson, director and London works manager have been appointed to serve on the board of Keith Blackman Ltd. as from August 1, last.

* * *

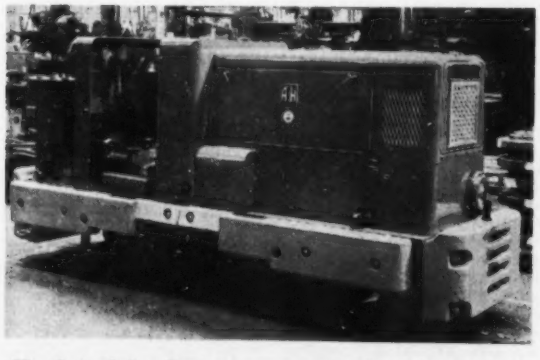
Dr. Zay Jeffries has been appointed director general and Mr. Kingsley W. Given assistant to the director general of the second World Metallurgical Congress to be held in Chicago, November 2-8, 1957.

* * *

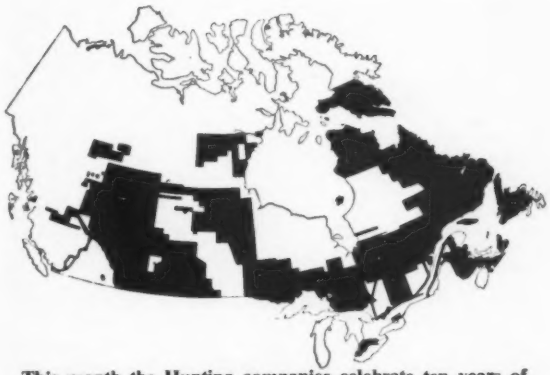
Sixty-two recruits for the South African mining industry flew from Hamburg to Johannesburg on a special B.O.A.C./S.A.A. flight on August 16.

* * *

Dallow Lambert and Co. Ltd., Thurmaston, Leicester, has announced that it has expanded its London office facilities and has taken up more commodious offices at 6 Stratton Street, London, W.1. Telephone: Grosvenor 4776, Telegrams: "Deduster, Wesphone," London.



The first of five Ruston narrow-gauge diesel locomotives ordered by the United Nations Korean Reconstruction Agency is here shown prior to dispatch from the Lincoln works. Three of the machines are to work underground in a Korean coal mine and are of the type shown in the photograph. They are flameproof models. Two locomotives are for surface work at the mine and are of recently improved design. The size is comparable with the underground machines, but no special exhaust equipment is fitted and the maximum tractive effort is 3,780 lb.



This month the Hunting companies celebrate ten years of operation in Canada. During that period more than one-third of Canada (shown in black) has been surveyed from the air by Hunting

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In the article entitled "Niobium and Tantalum" which appeared in 1956 in *The Mining Journal Annual Review*, on page 47, column 2, lines 24-27 it is stated that tantalum is an alternative to niobium as a stabiliser for certain types of stainless steel. This is incorrect as it is titanium, not tantalum, that can be used as an alternative to niobium as a stabiliser.

CONTRACTS AND TENDERS

Australia

Postponement of closing date and announcement. Special register circular Ten/19735 date 8/6/56 gave details of call for tenders (specification 537) for coal handling plant. Amendments now advised. Closing date under Ten/19735A now September 19, 1956. Ref.: ESB/13978/56. Telephone: Chancery 4411, Extension 738 or 771.

India

The International Co-operation Administration (I.C.A.) has announced the following procurements for India.

Ten. 20738. 3 scrapers cable control, 6 scrapers hydraulic control, 12 crawler tractors diesel, 3 bulldozers. Project Implementation Order 86/12/044/9/50264. Issuing authority Government of India, India Supply Mission, 2536 Massachusetts Avenue N.W., Washington 8, D.C. Closing date: 28/8/56. Ref.: ESB/20305/56/ICA. Telephone: Chancery 4411, Extension 360.

Ten. 20813. 6 one-man C.P.T. little giant or similar coal drill. Issuing authority Director General of Supplies and Disposals SPIA/3023-G/IV, Shahjahan Road, New Delhi. Closing date: 30/8/56. Ref.: ESB/20808/56. Telephone: Chancery 4411, Extension 738 or 771.

Ten. 20668. 2 power shovels 2½ cu. yd., 2 draglines 2½ cu. yd., 10 rear or side dumps 16 cu. yd. struck, 1 truck crane 30 tons capacity, 4 approx. 1,600 cu. ft. electric air compressors, 1 revolving 5-ton diesel crane, 1 tractor carrying low bed single drop trailer 60 tons capacity, 2 diamond core drills. Sealed tenders to Chief Engineer, Nagarjunasagar (Dam), Barkaputa, Hyderabad. Ref.: ESB/20071/56. Telephone: Chancery 4411, Extension 738 or 771.

Ten. 20666. Portable air compressor. Issuing authority Director General of Supplies and Disposals SPIA/15013-9/IV. Closing date: 12/9/56. Ref.: ESB/19969/56. Telephone: Chancery 4411, Extension 738 or 771.

* *

Messrs. Guest Keen Willians, Ltd., 41 Chowringhee Road, Calcutta, have informed the United Kingdom Trade Commissioner at Calcutta that they are interested in undertaking the representation of United Kingdom manufacturers of: Portable power tools, air compressors, etc. Temperature, pressure and process control instruments and apparatus for steel and other industries. The firm are seeking sole agencies and would cover the whole of India.

Manufacturers interested in this agency enquiry should write direct to the Calcutta concern. It would be appreciated if, at the same time, they would notify the United Kingdom Trade Commissioner, P.O. Box 9077, 1 Harrington Street, Calcutta 16, that they have done so.

METALS, MINERALS AND ALLOYS

COPPER.—Copper remained very stable in the United States last week. The big producers kept their spot price at 40 c., and the custom smelters held theirs fractionally cheaper at 39.75 c. per lb. Scrap copper moved steadily lower in sympathy with the softer tone in London to 32.75 c. for No. 2 scrap metal. The firmness must be attributed entirely to outside influences and to the London view of world affairs. Inside the United States the prospects are thought brighter than a few months ago but there is still a considerable weakness in actual buying. The hard fact is that the producers are unable to sell all the copper they can put on the market. In normal circumstances this would simply have prolonged the bearishness of past months; but the Suez crisis and the determination of European consumers to stock up if they can against an interruption to African supplies cannot be ignored. (As far as copper is concerned the Suez crisis is not much further advanced. Not till the London conference is over will it be possible to estimate the chance of a negotiated settlement.)

Domestically the American copper industry is still hampered by poor demand from the brassmakers. Brass mill customers are believed to be still living on their stocks. This process is expected to end shortly and the turn to buying for current requirement is likely in September. It might, of course, come a good deal sooner if things warm up around Suez; in that event living on inventory might not seem such a sensible thing no matter what the state of domestic demand. Of course, too, the automobile industry is sure to pick up to some extent when the new models come out. The scouts of the *Wall Street Journal* report that no less than 10 models (one more than in the previous best year) are to have completely new body style and three more are to have major face lifts. Some repercussion on sales is inevitable. The year when nine models were re-styled was the year of record sales. In the recent past substantial wage increases have been negotiated in many industries, so that there ought to be a fair demand for the new models. A revival in the automobile industry would put the brass mills back on all-out production.

In Rhodesia the labour situation continues to be strained. At Nkana and at Broken Hill members of the African Mineworkers' Union came out on strike on August 9 and stayed out till 13; on that day miners at Mufulira started a strike but it is expected to be shortlived. Both sets of stoppages were caused by the opposition of the African Union to the practice of transferring automatically certain grades of workers to the Staff association. The Northern Rhodesian Government, which is responsible for labour affairs, has appointed a commission of inquiry into labour disturbances on the copperbelt. The acting Chief-Secretary of Northern Rhodesia said that the government had for some time considered the desirability of such an inquiry. A director of Rhodesian Broken Hill Development Company said that his company had asked for an inquiry "to inquire into the true nature of the present discord which is being fermented throughout the mining industry in Northern Rhodesia and which may spread to other industries." He added that "the present strike was not a normal industrial dispute."

American production of crude copper in July reached 95,339 tons against 110,967 in June. Refined copper output was up to 136,713 tons against 125,401. Domestic deliveries reached 97,698 tons against 131,299 in June; stocks of refined copper climbed during the month from 60,671 tons to 87,934. Outside the United States crude copper output in July was 148,413 tons against 140,318 in June; production of refined copper was 115,232 tons against 114,669 in June.

LEAD.—Lead was in good demand in the United States at 16 c. per lb. last week with all sections of the trade giving good accounts of themselves but with particular interest being shown by the battery makers. Orders for as far forward as September are said to have been placed in excess of the usual level of buying. It is also being said that there has been some pressure to have contracts struck on the basis of the present price rather than on the customary day of delivery price. This is a conventional move whenever the market is expecting a rise. The pickup in lead buying has been only recent and it is, perhaps, premature to talk of 16½ c. yet, but a continued heavy demand for batteries (and an automobile recovery would prolong the seasonal peak now being approached) and a rise might become inevitable.

The strike at Broken Hill ended after a few days but the possibility of further trouble cannot be ignored.

A new lead find is reported from north-east Greenland. An unofficial report from one of the expedition's members speaks of some hundred kilos of almost pure lead near Lake Lummon close to Mestersvig. The Nordic Mining Company which has the concession for Greenland has declined to comment so far on the fund.

TIN.—Tin has tended to fluctuate in New York within the fairly narrow limit of 98.50 and 99 c. per lb. for spot straits metal. The metal has tended to weaken on any sign of conciliation in the Suez dispute which remains one of the outstanding market factors on both sides of the Atlantic. For example, the temporary hold-up in the flying out of British troops was regarded as a bearish pointer. It must be recognized that thinking on the other side of the Atlantic is different from that current in London. For one thing American foreign policy has always tended to differ from British policy in the Middle East on a matter of principle; in other words the Americans have tried at almost any cost to avoid being caught in the British camp. Secondly, Suez is nowhere near so vital to the United States as it is to Britain so that Americans are able to take a more detachable view; Suez is not Panama. Finally, this is election time. It is inconceivable to Americans that the Administration could get itself mixed up in a police action (or worse) at this time. The American view is roughly then that the dispute is scarcely worth a fight and anyway a fight at this time would be out of the question. It is easy to see why sentiment is rather more bearish in New York.

In addition the settling of the steel strike has not had a remarkable effect on demand from the tinplate producers. Part of the reason is that Weirton—one of the biggest tinplate producers—was not in the strike. Weirton's record for keeping out of strikes is quite exceptional. Nevertheless demand from other strike-bound plants has not picked up as it had been hoped.

The third factor at the present time is that of Malaya. The strike planned for August 21 is still officially on and the union expects that 18,000 miners at 60 European owned mines and dredges will strike. The dispute began over the question of back pay for Sunday work but blossomed into a general demand for higher pay and better working conditions. The union has for some time announced its readiness to negotiate through a third party without ever making quite clear what that third party would be. Presumably, it is the government for the union has also appealed to the government to intervene in the dispute. The government has responded with a promise to mediate if requested by both parties providing that normal conditions are first restored in the industry. This would presumably involve the union in direct negotiation with the employers which it wants to avoid. The government has further asked the union not to withdraw safety crews in the event of a strike. Meanwhile the employers have several times insisted that they do not think that the employees will follow the call to strike unanimously.

American Can is going ahead with its plan to process tin and steelplate to cut the costs involved in using pre-cut sheets. It has exercised an option to buy a 25 acre tract in Hammond, Indiana, to build a plant for the purpose. The Hammond plant will be completed next spring and will be "the largest of the company's facilities for processing plate from continuous strips". The company is also starting work on plate processing facilities in plants in Illinois and California.

ZINC.—Dealing in zinc has been only light in the past week with the price unchanged at 13.50 c. per lb. for prime western grade East St. Louis. Some zinc producers claim, however, that they have been asked for the metal for the steel mills that had been held back because of the strike. It will take some time to see whether the demand from the mills will actually make an impression on the stocks that have now been built up. But the present feeling is that though demand is good enough to cause some reduction it will not easily reduce them to their level of even two months ago. June production of recoverable zinc from domestic mines in the United States was 44,500 tons, a decrease of 6 per cent from May but an increase of 2 per cent on June a year ago. Output in the first six months of 1956 was 268,700 tons against 257,300 in the same period of 1955.

It is reported that work has begun on a zinc smelter at Cartagena to be run by a new company which includes Celdram S.A. Mining Company and the Banco Central of Madrid. The smelter will be able to convert 150,000 tons of sulphide zinc ore into 40,000 tons of zinc a year. In the past Spain has only processed zinc oxides while zinc sulphides have been exported to countries which supplied Spain with the metal.

The Argent Lead and Zinc property, near Delmas in the Transvaal, South Africa (not far from the Winkelhaak mine in

the Kinross area) is once again being mined. This is a private company under the technical control of New Consolidated Goldfields and our South African correspondent states that the initial tonnage to be treated will be 5,000 tons. The new company's board represents New Consolidated Goldfields, General Mining and Anglo American Corporation, and the present mining area is considerably larger than the original ground worked by the Transvaal Silver and Base Metals Company between 1882 and 1893 and also when is was worked as a susidiary of General Mining in 1923.

ALUMINIUM.—Following the signing of a new three-year labour contract with United Steel Workers of America, the Aluminium Company of America raised the price of aluminium ingot by 1.2 c. per lb. to 27.1 c. per lb. and that of pig aluminium by 1 c. to 25 c. per lb.

Alcoa said the wages agreement would increase labour costs by about 9 per cent during the first year of the new contract and in addition costs would rise because of the higher prices it would have to pay for purchased metals and services. The increase triggered off price increases elsewhere and the Canadian price was advanced 1 c. to 24½ c. a lb. This, in turn, has led to the basic U.K. aluminium price being raised by £8 to £197 a ton, to which price must be added the temporary surcharge of £1 10s. a ton imposed to defray the cost of special purchases made outside Canada to meet the previous shortage in the U.K.

A unique agreement designed to attain the most efficient mining of an important orebody owned jointly by the International Nickel Company and Falconbridge Nickel Mines has been signed. The orebody lies partly in the Levack property belonging to Inco and partly in the Fecunis Lake property of Falconbridge Nickel Mines, and it has been set up by the two companies in a block for a co-ordinated mining operation. When stoping operations begin, possibly in early 1958, they will be carried out in the two sections so that all ore from each company's property will be delivered to that company for processing. Thus, ore from the Fecunis section will be delivered to the ore passes at Falconbridge's Fecunis No. 1 shaft. The combined operation will result in maximum utilisation of the orebody by avoiding the necessity of leaving boundary walls between the two properties, and it will also allow for close co-ordination of the safety programme.

TITANIUM.—Republic Steel Corporation is undertaking an $8,000,000 programme to increase its production of titanium ingots and alloys to about 6,000 tons a year. The Corporation's present production is not given but it is stated that the expansion programme is expected to be completed by the autumn of 1957. Major facilities to be added include 12 melting furnaces.

ZIRCONIUM.—The Kennecott Copper Corporation will shortly begin on the design and construction of a new test plant near Cleveland, Ohio, to produce zirconium. This announcement follows the completion of licensing arrangements with the Horizons Titanium Corporation of Princeton, New Jersey, under which Kennecott acquired licences for the electrolytic production of zirconium and its by-products, the metal hafnium. The agreement also provides Kennecott with the option to take up licences for the electrolytic production of titanium, thorium, columbium and tantalum.

GOLD.—Advices received from the Agent General for Western Australia show that during the month of June 63,570 f.oz. were received at the Royal Mint, Perth, valued at £794,628.

The London Metal Market

(From Our Metal Exchange Correspondent)

The initial impact of the Suez Canal trouble was the covering of "bear" positions but this phase ended within a week with a maximum official price of £326 per ton. Since then the market has once again begun to realize that the daily production of copper is greater than the daily consumption, and prices have accordingly fallen steadily. There have been a series of minor strikes in Rhodesia which appear to be part of a pattern and are a reminder that all is not well in the Rhodesian Copper Belt, although it seems unlikely that there will be any serious stoppage in the near future.

Demand for copper in Europe has been negligible as no one really believes in a price of over £300 per ton, but in America demand has been sufficiently good to enable the customs smelters to raise their price to within ¼ c. per lb. of the 40 c. per lb. quoted by the producers: it is believed, however, that the primary producers themselves are building up stocks.

Although tin is the metal which would be the most affected by any trouble in the Suez Canal area, prices have remained only steady with a somewhat better demand from America and good routine buying in Europe. The general opinion is that there is still a very good chance of the strike in Malaya not materializing, and the serving of strike notices has had little effect on the market. On Thursday the Eastern price was equivalent to £785¾ per ton c.i.f. Europe.

Both the lead and zinc markets have been inclined to fluctuate in accordance with the price of copper, as there have been no major happenings in either the supply or consumption fields of either metal: if anything, the demand for lead remains more satisfactory than that for zinc, but the latter has still to feel the full effect of the settlement of the U.S. strike and the approaching new-model season in the car industry. Backwardations have been maintained and on some days have widened, as there is very little unsold metal afloat at the present time and day-to-day dealings for settlement in the current period have disproportionate effects on the price.

Closing prices and turnovers are given in the following table:

	August 9		August 16	
	Buyers	*Sellers*	*Buyers*	*Sellers*
Copper				
Cash	£318¼	£319	£297	£298
Three months	£317½	£318	£297	£298
Settlement	£319		£298	
Week's turnover	6,275 tons		5,500 tons	
Tin				
Cash	£773	£775	£769	£770
Three months	£770	£771	£767	£768
Settlement	£775		£770	
Week's turnover	405 tons		400 tons	
Lead				
Current half month	£117¾	£118¼	£115¼	£115½
Three months	£115¾	£116	£113¾	£114
Week's turnover	3,275 tons		3,550 tons	
Zinc				
Current half month	£97¾	£98	£95	£95½
Three months	£95¾	£96	£93	£93½
Week's turnover	4,650 tons		3,775 tons	

OTHER LONDON PRICES — AUGUST 16

METALS

Aluminium, 99.5%, £198 10s. per ton
Antimony —
English (99%) delivered, 10 cwt. and over £210 per ton
Crude (70%) £200 per ton
Ore (60%) bases 23s. 6d./24s. 6d. nom. per unit, c.i.f.
Bismuth
(min. 1 ton lots) 16s. lb. nom.
Cadmium 12s. 0d. lb.
Chromium, 6s. 11d. lb.
Cobalt, 21s. lb.
Gold, 251s. 6½d.
Iridium, £29/31 oz.
Manganese Metal (96%-98%) £259/£265 according to quantity
Magnesium, 2s. 4d. lb.
Nickel, 99.5% (home trade) £519 per ton
Osmium, £24/27 oz. nom.
Osmiridium, nom.
Palladium, £8 0s./£8 10s. oz.
Platinum U.K. and Empire Refined £34/£35 oz. Imported £37 10s./£38 10s. nom.
Rhodium, £42.
Ruthenium, £15/£17 oz.
Quicksilver, £84 0s. ex-warehouse
Selenium, 112s. nom. per lb.
Silver, 79d. f.oz. spot and 79f'd.
Tellurium, 15s./16s. lb.

ORES, ALLOYS, ETC.

Bismuth .. .. 60% 8s. 3d. c.i.f.
20% 3s. 3d. lb. c.i.f.

Chrome Ore —
Rhodesian Metallurgical (semifriable) 48% £16 15s. 0d. per ton c.i.f.
„ Hard Lumpy (45%) £16 15s. 0d.
„ Refractory 40% £10 15s. 0d. per ton c.i.f.
„ Smalls 42% .. £13 15s. 0d. per ton c.i.f.
Baluchistan .. .. .. £17 5s. 0d. c.i.f.
Magnesite, ground calcined .. £28 0s./£30 0s. d/d
Magnesite, Raw (ground) .. £21 0s./£22 0s. d/d
Molybdenite (85% basis) .. 8s. 2½d. nom. per lb. (f.o.b.)
Wolfram and Scheelite (65%) 247s. 6d./252s. 6d. c.i.f.
Tungsten Metal Powder (98% Min. W.) .. 20s. 2d. nom. per lb. (home)
Ferro-tungsten (80%-85%) .. 17s. 2d. nom. per lb. (home)
Carbide, 4-cwt. lots .. .. £41 3s. 9d. d/d per per ton
Ferro-manganese, home .. £66 per ton
Manganese Ore Indian
Europe (46%-48%) basis 125s. freight .. .. 105d./106d. nom. per unit c.i.f.
Manganese Ore (43%-45%) .. 98d./99d. nom. per unit c.i.f.
Manganese Ore (38%-40%) .. 92d. nom. per unit.
Brass Wire .. .. .. 3s. 0⅛d. per lb. basis
Brass Tubes, solid drawn .. 2s. 4⅞d. per lb. basis

COMPANY NEWS AND VIEWS

Middlevlei Participation in J.C.I.'s Waterpan Venture

Disappointing results published last April by Middlevlei Estate and Gold Mining Company in connection with prospecting operations being carried out by Venterspost Gold on Farm Middlevlei 28, district Randfontein, should have prepared shareholders for the latest announcement which states that in view of "extremely discouraging" disclosures, work has been stopped as from July 28.

The report reveals that no values over 40 in. dwt. were obtained from drilling and although the Main Reef was actually located, gold content was negligible. A total distance of 1,910 ft. was driven underground from Venterspost into the Middlevlei property, but results indicated an extreme unlikelihood that any payable values would be found either up or down dip.

Serious though the loss of some £40,000 expended on the programme has been to the company, this event by no means marks the end of the story of its association with Far Western Rand exploration. Middlevlei—with its cash holdings of about £144,000 and quoted securities valued at £55,000, still has sufficient money to follow its conviction that prospecting will eventually result in exploitation of the area.

An indication of this confidence may be obtained from the company's intention to continue to use its resources for acquiring new interests. Already, a 10 per cent participation in the 50 per cent state which New Union Goldfields holds in exploration activities on Farm Modderfontein No. 4 in the Waterpan Area, has been acquired. The remaining 50 per cent is held by Johannesburg Consolidated Investment Company which—as is well known—is prospecting intensively in this area through Free State Development and Investment Corporation.

Meanwhile, leaving aside the sum paid for this participation which has not yet been disclosed—the chairman, Lt. Col. R. L. Broad, may have something to say on this matter in his statement due sometime in October—the company's financial position *vis-à-vis* the market price of its shares seems favourable. Indeed, as the issued capital is £286,794, break-up calculated on assets of some £200,000 should amount to about 1s. 6d. a share. This compares with a current Stock Exchange quotation of 6d. to 1s. and a par value of 2s. 6d.

West African Quarterlies

Due to a strike of African labour on the Gold Coast which lasted from November 20, 1955, until the end of February, 1956, no figures were published from Western Selection and Development Group Companies for the first quarter of the current year.

Company	June qtr. 1956	Dec. qtr. 1955	Sept. qtr. 1955	June qtr. 1955
Amalgamated Banket ...	55,498	19,492	103,303	82,202
Ariston	94,356	46,044	143,860	143,410
Bremang	34,672	20,778	53,020	42,161
G.C.M.R.	35,765	2,395	14,839	25,026

The above table therefore only provides a comparison between results of operations during the June quarter of 1956 and those in respect of the last three quarters of 1955.

Mining Issues Strong: Golds Rise

During the past week London mining issues either established useful gains or maintained a steady undertone. This reflected a better feeling on the Suez dispute. Led by oils and gilts, golds and industrials rose.

Wall Street remained firm although trading contracted. After touching an all-time peak of 521.39 *The Dow Jones Industrial Ordinary Index* had fallen by August 15 to 517.70 from 519.04 on August 9. *Rails* lost 4.27 points to 165.73. In contrast, *The Financial Times Industrial Ordinary Index* gained 2 points to 181.9.

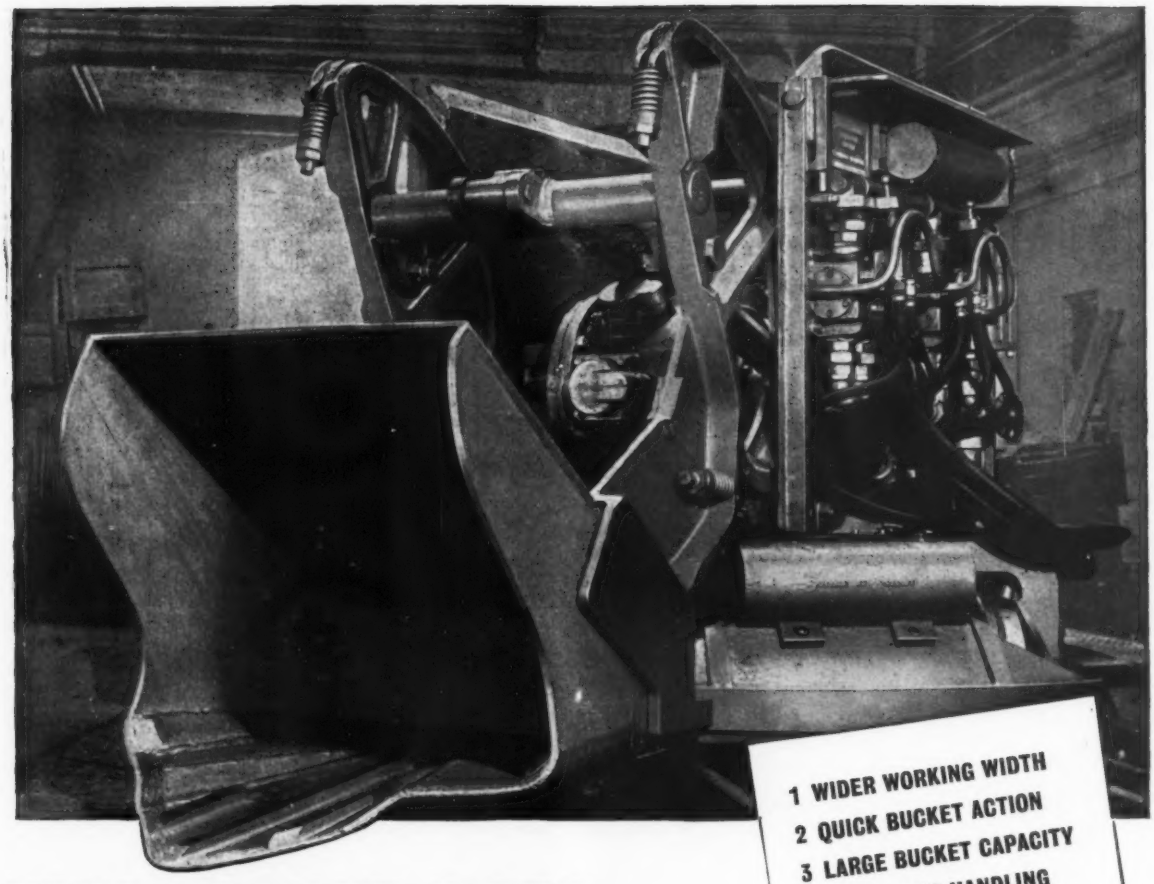
LONDON STOCK EXCHANGE PRICES — AUGUST 9 - AUGUST 15, 1956

Finance	Price Aug. 15	+ or — on week
African & European	3/16	+1/16
Anglo American Corpn.	7/16	.....
Anglo-French	22/-	+6d
Anglo-Transvaal Consol.	1/8	+1/16
Central Mining (£1 shrs.)	49/3	—3d
Consolidated G'fields	57/6	+3d
Consol. Mines Selection	1 1/16	.....
East Rand Consols	2/-	.....
General Mining	3 1/8	+1/16
H.E. Prop.	8/4½	—7½d
Johnnies	39/-	+2/-
Rand Mines	3/16	.....
Rand Selection	1 1/16	+1/16
Union Corporation	38/-	+1/9
Vereeniging Estates	4 1/16	.....
Writs	1 1/16	.....
West Wits	36/3	+1/-
Rand Gold		
Blyvoors	22/6	+2/3
Brakpan	5/9	.....
Buffelsfontein	27/4½	+10½d
City Deep	10/-	.....
Consol. Main Reef	1/16	.....
Crown	1 1/16	.....
Daggas	2/16	+1/16
Dominion Reefs	18/9	+1/3
Doornfontein	20/9	+9d
Durban Deep	1/8	.....
E. Champs	3/-	+6d
E. Daggas	9/3	+3d
E. Geduld (4s. units)	28/6	+6d
E. Rand Props.	47/6	+3/1½
Geduld	3/8	—1/16
Govt. Areas	3/1½	.....
Grootvlei	18/4½	+1/3
Hartebeestfontein	37/7½	+7½d
Libanon	7/1½	+1½d
Luipards Vlei	13/-	+3d
Marievale	20/7½	+9d
New Kleinfontein	3/4½	.....
New Pioneer	14/6	+6d
Randfontein	39/3	+1/9
Robinson Deep	8/9	.....
Rose Deep	8/9	.....
Simmer & Jack	3/6	.....
S.A. Lands	1/16	+1/16
Springs	2/7½	+3d
Stilfontein	23/10½	+4½d
Sub Nigel	1-/16	.....
Vaal Reefs	30/3	+1/6
Van Dyk	2/3	.....
Venterspost	13/9	+1/-
Vlakfontein	16/7½	+1/3
Vogelstruisbult	16/7½	.....
West Driefontein	5/16	+1/8

Rand Gold contd.	Price Aug. 15	+ or — on week
W. Rand Consolidated	1 1/32	.....
Western Reefs	27/3	+9d
O.F.S. Gold		
Freddies	8/4½	+7½d
Fre.idies Consolidated	4/4½	+7½d
F.S. Geduld	4/-	+1/16
Geoffries	8/1½	+10½d
Harmony	26/-	+1/6
Loraine	5/9	+3d
Lydenburg Estates	16/10½	+7½d
Merriespruit	7/6	.....
Middle Wits	12/-	+9d
Ofaits	57/9	+2/3
President Brand	2/8	+1/16
President Steyn	31/9	+1/3
St. Helena	28/6	+6d
Virginia Ord.	9/9	+3d
Welkom	19/3	+1/-
Western Holdings	3 1/16	+1/16
West African Gold		
Amalgamated Banket	1/5½	+1/32d
Ariston	3/10½	.....
Ashanti	14/10½	—1½d
Bibiani	2/3	.....
Bremang	1/3½	—1d
G.C. Main Reef	1/6	+1½d
Konongo	1/6	.....
Marlu	1½d	.....
Taquah	1/7½	.....
Western Selection	6/6	—3d
Australian Gold		
Gold Mines of Kalgoorlie	14/-	—3d
Great Boulder Prop.	10/9	—3d
Lake View & Star	16/3	—1½d
Mount Morgan	21/9	+6d
North Kalgurli	6/9	.....
Sons of Gwalia	2/10½	.....
Western Mining	10/6	+1½d
Miscellaneous Gold		
Cam & Motor	7/6	—1½d
Champion Reef	6/6	.....
Falcon Mines	7/9	.....
Globe & Phoenix	23/9	—1/3
Motapa	10½d	.....
Mysore	3/7½	.....
Nundydroog	10/-	+3d
St. John d'El Rey	35/6	+4/9
Zams	2 1/16	.....

Diamonds and Platinum	Price Aug. 15	+ or — on week
Anglo American Inv.	8 1/16	.....
Casts	24/10½	+2/6
Cons. Diam. of S.W.A.	10/3	.....
De Beers Defd. Regd.	5/16	+1/8
De Beers Pfd. Regd.	13½	+1/8
Pots Platinum	13/9	+9d
Waterval	21/9	+6d
Copper		
Bancroft	50/9	.....
Chartered	71/6	+1/3
Esperanza	2/10½	—1½d
Messina	9	—1/8
Nchanga	13/16	+1/8
Rhod. Anglo-American	5/8	.....
Rhod. Katanga	37/6	+3/6
Rhodesian Selection	50/3	+2/6
Rhokana	42½	—1/4
Rio Tinto	3 1/16	+1/8
Roan Antelope	27/3	+1/-
Selection Trust	4 1/16	—1/16
Tanks	7/8	.....
Tharsis Sulphur Br.	4/8	.....
Tin (Eastern)		
Ayer Hitam	20/9	.....
Gopeng	9/6	.....
Hongkong	5/4½	.....
Ipoh	23/6	.....
Kamunting	8/-	.....
Kepong Dredging	3/-	—1½d
Kinta Tin Mines	14/9	.....
Malayan Dredging	9/9	—1½d
Pahang	11/1½	+1½d
Pengkalen	13/4½	+3d
Petaling	7/3	.....
Rambutan	17/6 XCR	.....
Siamese Tin	8/9	+1½d
Southern Kinta	14/9	+4½d
S. Malayan	6/7½	—1½d
S. Tronoh	5/6	—3d
Sungei Kinta	14/-	.....
Tekka Taiping	6/-	+7½d
Tronoh	9/-	.....
Tin (Nigerian and Miscellaneous)		
Amalgamated Tin	9/9	—3d
Beralt Tin	48/9	+1/9
Bisichi	4/-	.....
British Tin Inv.	21/4½	.....
Ex-Lands Nigeria	2/-	.....
Geevor Tin	17/-	.....

Tin (Nigerian and Miscellaneous) contd.	Price Aug. 15	+ or — on week
Gold & Base Metal	1/1½	+1½d
Jantar Nigeria	4/3	.....
Jos Tin Area	12/3	.....
Kaduna Prospectors	1/6	.....
Kaduna Syndicate	2/3	.....
London Tin	9/-	—3d
United Tin	10½d	.....
Silver, Lead, Zinc		
Broken Hill South	60/7½	+7½d
Burma Mines	4/4½	+1½d
Consol. Zinc	51/9	+3d
Lake George	14/-	—4½d
Mount Isa	20/9	+3d
New Broken Hill	44/6	.....
North Broken Hill	4 1/16	—1/16
Rhodesian Broken Hill	11/9	.....
San Francisco Mines	25/-	—6d
Uruwira	4/9	.....
Miscellaneous Base Metals and Coal		
Amal. Collieries of S.A.	48/1½	+1/10½
Associated Manganese	37/7½	+3/1½
Cape Asbestos	9/9	.....
C.P. Manganese	27/-	+6d
Consol. Murchison	2 1/16	+1/8
Natal Navigation	60/-	+1/-
Turner & Newall	104/3	.....
Wankie	17/-	—4½d
Witbank Colliery	4/8	.....
Canadian Mines		
Dome	$27	+1
Hollinger	$54½	—½
Hudson Bay Mining	$170	—7
International Nickel	$203	.....
Mining Corpn. of Canada	£9½	—1/8
Noranda	$122½	+3½
Quemont	£10½	—¼
Yukon	5/1½	—1½d
Oil		
Apex	44/-	+6/6
Attock	37/-	+6d
British Petroleum	7/8	+1/4
Burmah	4 1/16	+1/16
Canadian Eagle	65/6	+1/9
Mexican Eagle	21/6	—3d
Shell	7 1/16	—1/16
Trinidad Oil	79/3	+9d
T.P D.	50/6	+3d
Ultramar	41/3	+1/3



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THE *Atlas Copco* GROUP OF COMPANIES

Manufacturers of Stationary and Portable Compressors, Rock-Drilling Equipment, Loaders, Pneumatic Tools and Paint-Spraying Equipment

The Gold Share Index—which at one time declined to a new low of 75.9—rallied strongly to 79.4. This was taken by some observers as confirmation that an important resistance level has been established. West Africans remained quiet but some gains were recorded.

Amongst coppers Rho-Kats moved up sharply to over 37/6. R.S.T. were strong on New York and Paris buying. Platinums were higher. Tins and diamonds remained steady.

Some Anglo-Oriental Reports

Reports and accounts from Anglo-Oriental (Malaya) tin companies in respect of the year ended March 31, 1956, have been published. Mr. D. T. Waring is chairman of all these companies whose meetings are to be held at Kuala Lumpur, Malaya, on August 15.

Rawang Tin Fields

Mainly because of a rise to £741,056 from £515,127 in cash holdings, current assets were significantly increased to £1,049,974 from £842,363. On the other hand, fixed assets declined to £365,948 from £470,225, and total balance sheet figures for 1956 showed only a modest increase to £1,415,922 from £1,312,588. During the past financial year net profits after tax amounted to £170,626 against £165,964 previously. Dividends absorbed £168,630 (£153,300) and unappropriated profits carried forward of £155,824 contrasted with £151,624.

Kampong Lanjut Tin Dredging

Total assets at March 31, 1956, were slightly higher at £697,766 compared with £635,074 at the end of the previous year. Fixed assets moved up to £457,240 from £245,549 while current assets decreased to £240,526 (£357,798). Current liabilities and future taxation at £43,310 compared with £21,046 previously. During the year the company's issued capital was increased to £400,000 by allotment of shares in settlement of vendor consideration for the Jingang area. Net profits rose to £32,170 from £20,079. The unappropriated balance declined to £66,656 from £96,476.

Rawang Concessions

Total assets fell to £483,276 from £538,532. Mainly responsible for this was a decline in current assets to £471,928 from £514,744. Current liabilities and future taxation of £54,791 contrasted with £95,883. During the past financial year net profits slumped to £3,843 from £38,630. Dividends absorbed £21,000 (£38,500) and the unappropriated balance carried forward was reduced to £175,170 from £192,327.

Kuala Kampur Tin Fields

The company's No. 3 dredge was sold and the cash so provided enabled a return of capital to shareholders which reduced the issued equity to £307,500 from £615,000. Fixed assets similarly fell to £192,842 from £333,761 and current assets declined to £1,734,321 from £1,777,352. Total balance sheet figures of £1,927,163 compared with £2,111,113 previously. Net profits after tax totalled £368,094 (£419,175). Dividends absorbed £365,925 (£387,450) and unappropriated profits moved up to £665,495 from £663,326.

Kramat Tin Dredging

Due to appropriations in respect of special provisions for depreciation and depletion the company's accumulated profit figure on the balance sheet fell from £101,865 to £49,179. Total assets were accordingly reduced to £276,701 from £335,985. Current assets of £66,039 (£131,806), however, exceeded current liabilities of £15,329 (£38,793) by £50,710. Net profits after taxation were nearly doubled at £16,317 against £8,906 during the previous year. But the unappropriated balance carried forward was reduced to £49,179 from £101,865.

Inco's Higher Earnings

During six months ended June 30, 1956, net earnings after all charges, depreciation, depletion, taxes, etc., by The International Nickel Company of Canada in terms of U.S. currency expanded to $51,772,000. After preferred dividends, this amounted to $3.48 per share on the common stock. During the first six months of 1955 net earnings were $45,329,000, or $3.04 per common share. Earnings during the last six months of 1955 were $46,237,000 or $3.10 per common share.

In their interim report to shareholders, Chairman John F. Thompson, and President Henry S. Wingate emphasised that high copper prices continued to be the principal factor contributing to increased earnings.

Inco declared a dividend of 65 c. a share on August 6. Similar dividends were paid in respect of the four preceding quarters. An extra dividend of $1.35 was also paid at the year end.

Offer for Filani's Plant and Leases.—A firm offer of £18,000 has been received by Filani (Nigeria) Tin for the purchase of its leases, plant and machinery in Nigeria. If the sale is confirmed by stockholders, the company would be left with cash and investments exceeding its issued capital of £26,494.

TRANSVAAL AND O.F.S. GOLD AND URANIUM PRODUCERS

Comparison and analysis of salient results for the first six months of 1956 and 1955

	Heading	*Jan. to June*	*Transvaal Cos.*	*O.F.S. Cos.*	*Total*
1	Tons milled: Millions	1956	29.2	4.5	33.7
		1955	29.2	3.3	32.5
2	Ounces produced: Millions	1956	6.3	1.5	7.8
		1955	6.1	1.0	7.1
3	Grade per ton: Dwt.	1956	4.1	6.5	4.5
		1955	4.0	5.9	4.2
4	Working profits: Gold £m	1956	16.4	6.6	23.0
		1955	17.7	3.8	21.5
5	Working profits : Uranium £m	1956	9.4	2.1	11.5
		1955	6.9	0.5	7.4
6	Total profits: (4+5): £m	1956	25.8	8.7	34.5
		1955	24.6	4.3	28.9
7	Working costs per ton: s. d.	1956	40/6	52/8	42/2
		1955	38/9	51/4	40/1
8	Non-European Employees at end of June	1956	280,000	55,000	335,000
		1955	276,000	47,000	323,000

9th August 1956

BREMANG GOLD DREDGING

The Nineteenth Annual General Meeting of Bremang Gold Dredging Company, Ltd., was held on August 14 in London.

Mr. W. J. C. Richards, a director, presided.

The following is an extract from the statement of the Chairman, Major-General W. W. Richards, C.B., C.B.E., M.C., circulated with the Report and Accounts :—

The Accounts for the year ended December 31, 1955, show improvement compared with the previous year. A profit of £62,779 was earned against a loss of £7,130. The directors recommend a dividend of 5 per cent, less tax. This will leave £44,050 to be carried forward.

Total ounces of gold recovered for the year was 42,902 bullion from an aggregate of 8,221,460 cubic yards dredged. This compares with 32,020 ounces from 6,334,880 cubic yards for the previous year. The percentage of recovery was again above the borehole values, and a record monthly output of 5,197 ounces bullion was established in June. Working costs at 10.70d. were lower by 1.57d. per cubic yard. Planned preventative maintenance has reduced the shutdown periods.

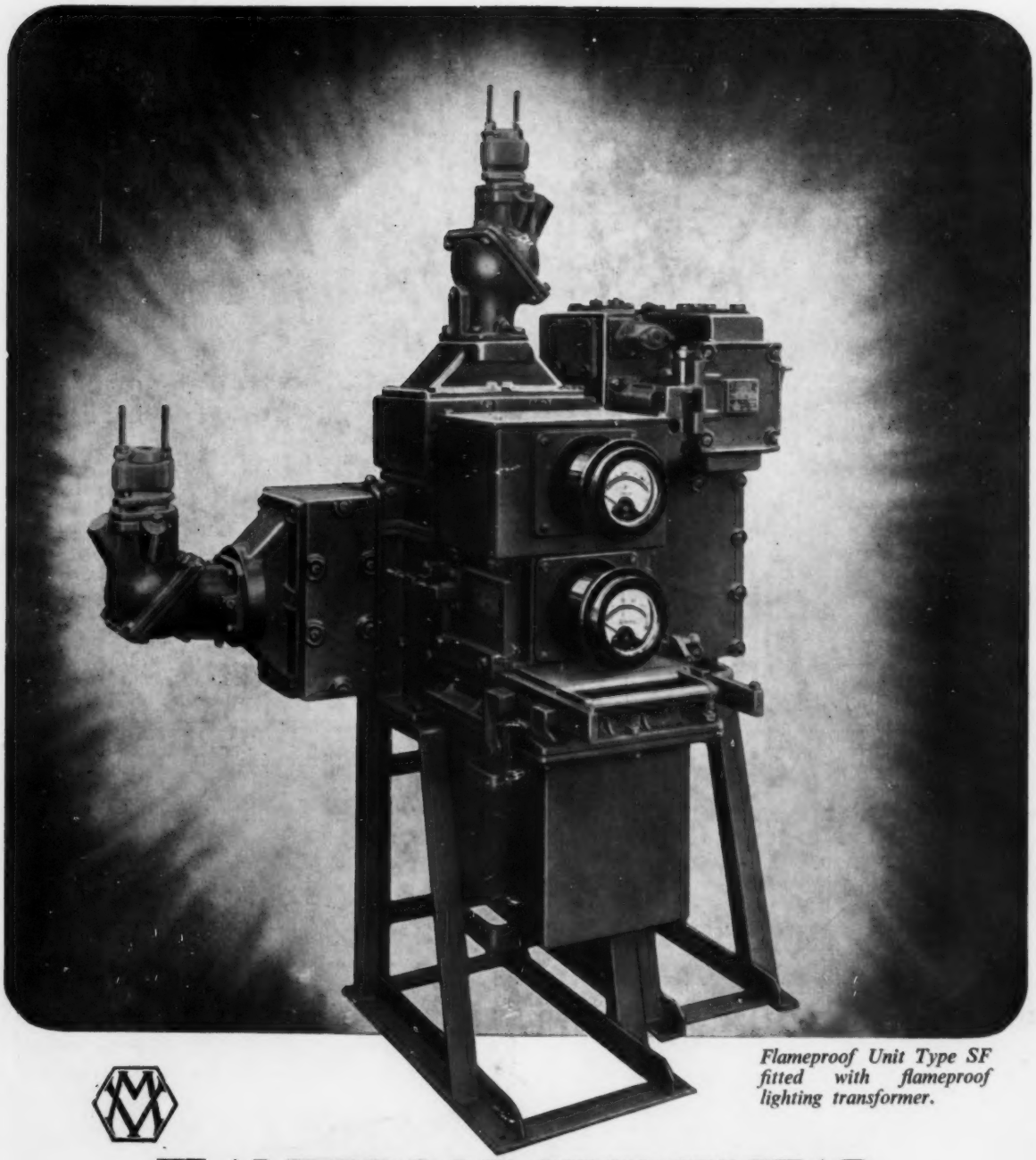
With regard to current operations—for the first six months of the current financial year 3,538,080 cubic yards have been treated for a recovery of 17,551 ounces of gold, giving an operating profit of £44,514. This compared with 4,161,680 cubic yards and 19,633 ounces, and a profit of £47,085 for the corresponding period of last year.

In the early part of the year, the General Manager estimated that the bullion output for 1956 will approximate the 1955 figure.

Much time and detailed study has, and is being given to the transfer of the two Dredges at present working on the Ankobra River to the Extended Areas. It is estimated that one Dredge (No. 4) will have worked through its area of reserves by January next, and provided no holdups occur in the supply of the several renewal parts of the equipment, it is estimated that the complete dismantling and re-erection can be completed in six months. A similar move for the No. 3 Dredge will be made about November, 1958.

The report and accounts were adopted.

Metal and Mineral Trades



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